(12) UK Patent Application (19) GB (11) 2 138 192 A

(43) Application published 17 Oct 1984

(21) Application No 8309732

(22) Date of filing 11 Apr 1983

(51) INT CL[3]
G07F 9/00

(52) Domestic classification
G4V 118 HH
U1S 1174 G4V

(56) Documents cited
GB 1546773
GB 1328051
GB 1238997
GB 1026883
GB 0984006
GB 0904947

(58) Field of search
G4V
G4X

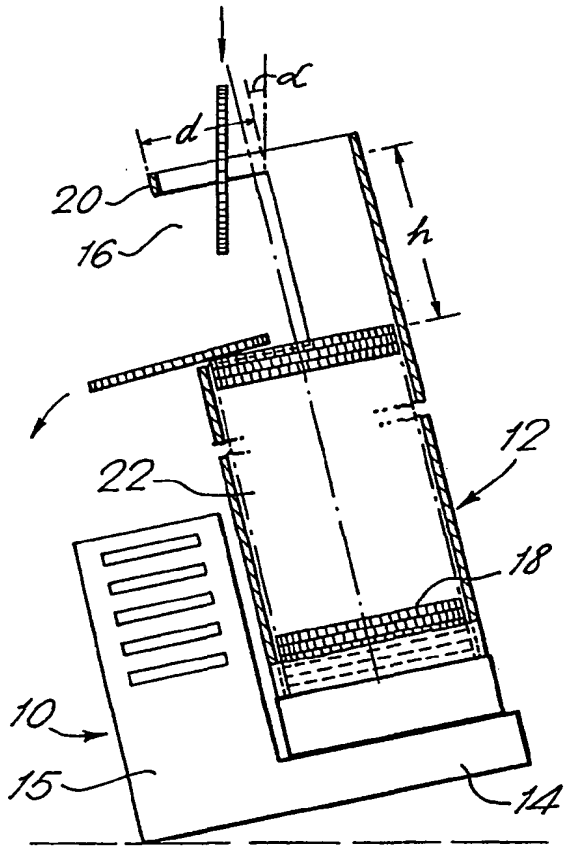
(71) Applicant
Coin Controls Limited (United Kingdom),
New Coin Street, Royton, Oldham, Lancashire OL2 6JZ

(72) Inventor
Patrick William Weir

(74) Agent and/or Address for Service
Venner Shipley & Co.,
368 City Road, London EC1V 2QA

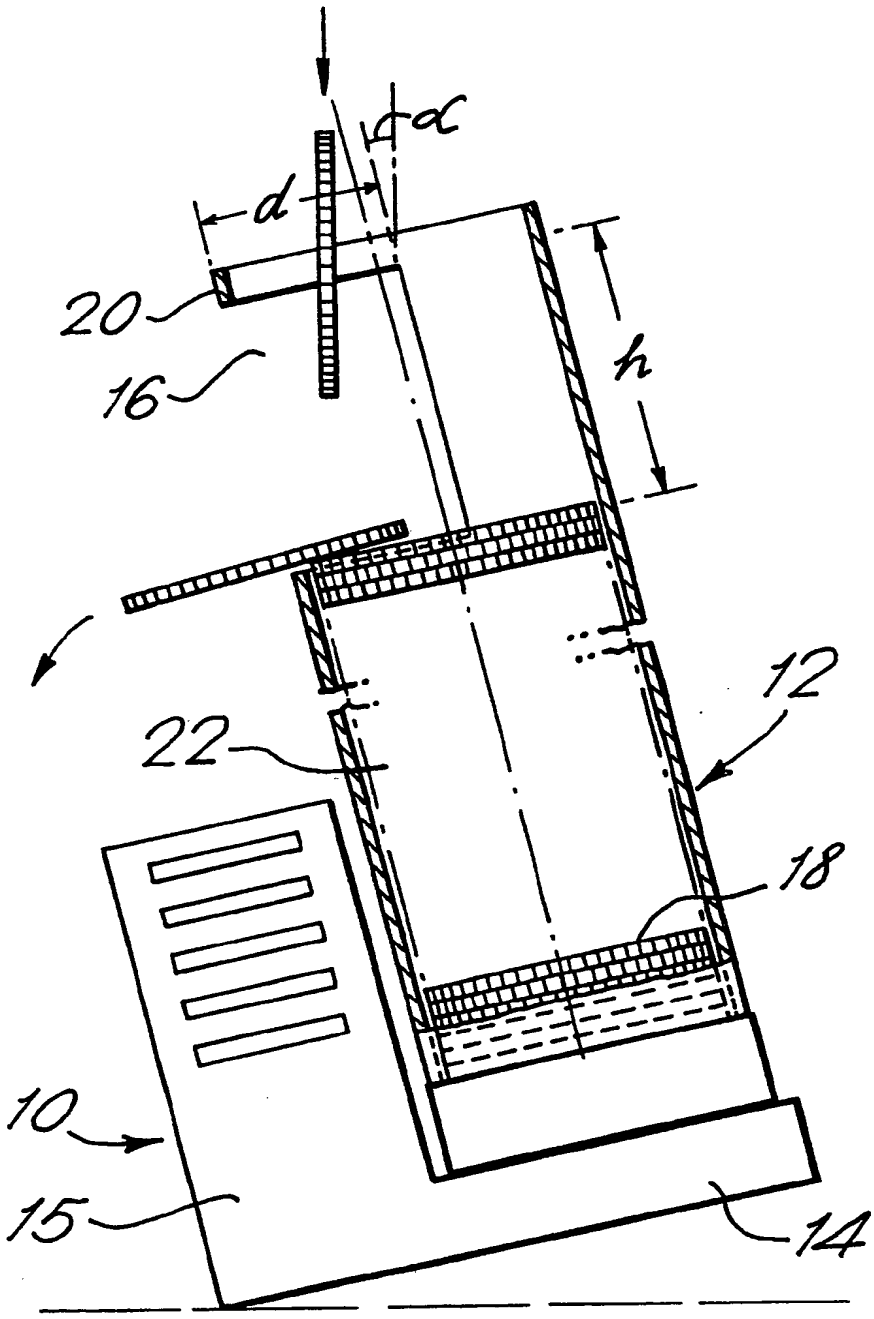
(54) Coin payout tubes

(57) A coin payout mechanism for a gaming, amusement or vending machine, including a coin payout tube (12) which is inclined, for example at an angle (α) of about 12.5 degrees to the v rtical, and which just below its open top has a coin overflow window (16) dimensioned for exit of coins falling into the tube on to the top of a stack which fills the tube up to the level of the bottom of the window.



The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

GB 2 138 192 A



SPECIFICATION

Improvements in coin payout tubes

This invention relates to a coin payout tube.

In coin or token operated amusement, gaming and vending machines and apparatus which provides for coin or token pay out, coins ready for pay out are normally stacked flat in a vertical coin payout tube. This tube has an internal diameter slightly in excess of the coin diameter. The tube is surmounted by a hopper which directs the coins into the top of the tube and at the bottom has a solenoid operable slide, operable responsively to a pay out instruction signal, for releasing and/or ejecting one or more coins or tokens from the bottom of the stack.

The payout is often full, and coins or tokens then have to overflow into a cash store. The overflow of coins from a full payout tube is a cause of various problems and various designs of overflow system have been proposed in an endeavour to overcome these problems. Generally, either coins tend to overflow the top of the tube before it is full or coins tend to collect on top of the tube instead of overflowing, thus causing jamming. Known proposals, such as coin deflectors, have tended to reduce one problem at the expense of the other.

It is an object of this invention to provide an improved coin payout tube which aims to minimise both problems simultaneously.

According to one aspect of the present invention, there is provided a coin payout tube which is formed with a window for the exit of overflow coins.

When the tube having such overflow window is mounted at an inclination to the vertical, titled with the window on the underside, the tube fills to the bottom of the window and surplus coins then overflow by sliding off the top coin of the stack to overflow through the window.

Thus according to another aspect of the invention, there is provided a coin or token operable machine incorporating a payout tube inclined to the vertical. A window on the underside of the payout tube near the top thereof provides for overflow of coins from a stack which builds to the bottom level of the window.

In other respects, the coin payout tube may be of conventional form, surmounted by a hopper and having a solenoid operable slide at the bottom. Preferably, however, it is moulded of plastics material, conveniently as a one piece structure incorporating a solenoid housing and slide mounting.

In a preferred arrangement, the window is formed a sufficient depth below the top of the tube, say at least two coin thicknesses, to ensure that received coins are guided into a flat or near flat condition before dropping past the window on to the top of the stack. A preferred height for the window is a small amount gr ater than the coin diamet r; a preferred depth for the window is a small amount greater than half the coin diameter, i.e. the wall of the tube is cut away over slightly more than half its circumference.

A preferred angle of lean for the payout tube is between 10 and 15 degrees, conveniently about 12.5 degrees. The preferred angle is in practice the minimum angle at which an overflow coin or token, whether new, well used, clean or dirty, will reliably slide sideways off the top coin of the stack.

A practical embodiment of coin payout tube in accordance with the invention is diagrammatically illustrated in the accompanying drawing, which shows the payout tube in its mounted position in a machine.

The illustrated payout tube comprises a payout assembly 10 integrally moulded of plastics material, and includes the payout tube 12 itself, a base 14 which includes a slide mounting which closes the bottom of the tube 12, and a housing 15 for a solenoid which operates the slide to eject the bottom coin of a stack thereof in the tube. The manner of operation of the assembly to eject a coin (or token), responsively to a pay out instruction signal fed to the solenoid, is conventional.

In accordance with the invention, the payout assembly 10 is mounted in the machine (gaming, amusement or vending machine) so that the payout tube 12 is inclined to the vertical, conveniently at an angle (α) of 12.5 degrees.

Also in accordance with the invention, the tube wall is formed with a window 16, just below (about two coin thicknesses) the open top of the tube, this window 16 being disposed on the underside of the tube having regard to the tilted condition of the tube. The tube itself has an internal diameter slightly exceeding the external diameter of a coin; the window conveniently has a height (h) along the tube axis slightly exceeding the coin diameter and a depth (d) into the tube slightly greater than half the coin diameter.

In use, the top of the payout tube 12 is disposed beneath a hopper (not shown) which receives coins (or tokens) input to the machine and accepted thereby. If the tube 12 is not full, i.e. stacked with coins 18 in flat condition to the level of the bottom of the window 16, coins falling from the hopper are guided into a flat or near flat condition by the complete circular wall part 20 of the tube above the window 16 and thereby fall past the window on to the top of the existing stack, where it is retained by the main circular wall part 22 of the tube below the window. If the tube is full, a coin entering the top of the tube 12 is again guided into a flat or near flat condition, and drops flat on to the top of the stack just above the level of the bottom of the window 16. The coin thence slides off the stack, owing to the tilted condition of the tube 12, and exits through the window 16 to fall into a cash store.

It is found in practice that the above-described payout tube has both a much reduced tendency not to fill properly and a much reduced tendency to overfill and jam than a conventional vertical payout tube which does not have a high level window.

Either the machine or the payout assembly may be adapted to enable inclined mounting f the pay ut tube. If the machine has a flat horizontal support to receive the base of a conv ntional payout tube, the assembly 10 of this invention may, for exampl , have a wedge shaped base 14 which tilts the tube at an appropriate angle which ensures that coins can slide off the top of the stack under gravity to exit

through the window. An angle of between 10 and 15 degrees is usually preferred.

Various modifications of the invention are possible within the scope of the invention as defined by the appended claims.

For instance, the window 16 need not be located at or near the top of the payout tube 12. If 10 pence coins are used, it will be appreciated that a machine float of £5.00 would fill the payout tube so the window would be near the top thereof. However, for the same £5.00 float using 20 pence coins, the window would have to be located halfway down the tube and for £1.00 coins very near the bottom.

CLAIMS

1. A coin payout for a gaming, amusement or vending machine, formed with a window for the exit of overflow coins.

2. A payout tube according to claim 1, wherein the window is disposed about two coin thicknesses below the top of the tube.

3. A payout tube according to claim 1 or claim 2, wherein the window has a height slightly exceeding the coin diameter.

4. A payout tube according to claim 1 or claim 2 or claim 3, wherein the window has a depth slightly exceeding one half the coin diameter.

5. A payout assembly including a payout tube as claimed in any of claims 1 to 4, a base including an ejector slide mounting and a housing for a slide-operating solenoid.

6. A payout assembly according to claim 5, wherein the tube, base and housing are integrally moulded of plastics material.

7. A payout assembly according to claim 5 or claim 6, having means for mounting the assembly in th machine so that the payout tube is inclined to the vertical.

8. A coin operable machine having a coin payout mechanism including a payout tube which is inclined to the vertical.

9. A machine according to claim 8, wherein the angle of inclination of the tube lies between 10 and 15 degr es.

10. A machine according to claim 9, wherein said angle of inclination is about 12.5 degrees.

11. A machine according to claim 8 or claim 9 or claim 10, wherein the payout tube has a coin overflow window for exit of coins, said window being disposed on the underside of the tube having regard to its inclined orientation.

12. A machine according to any of claims 8 to 11, having means for mounting the payout mechanism so that the payout tube is inclined.

13. A payout tube assembly substantially as her inbefore described with reference to the accompanying drawing.

Printed in the UK for HMSO, D8818935, 8/84, 7102.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.